



5B. Bicycle System Plan

connecting
REDMOND

Transportation Master Plan



Figure 5B.1 Redmond has various types of bicyclists who desire various levels of bicycle accommodation.

Contents of this Chapter

This modal chapter of the Transportation Master Plan addresses ways to improve bicycling conditions in Redmond. Topics discussed include:

- ✓ Types of Bicyclists
- ✓ Bicycle Facility Planning in Redmond
- ✓ Implementation
- ✓ Prioritizing Needs
- ✓ Missing Links
- ✓ Making Seamless Transitions
- ✓ Education, Encouragement, Enforcement
- ✓ Secure Bicycle Parking
- ✓ Bike Plan Maps
 - Existing and Proposed Facilities
 - Primary and Secondary Corridors

Introduction

Types of Bicyclists

It is generally recognized that there are two types of cyclists: Group A - Advanced Bicyclists, and Group B - Basic Bicyclists. There is also a Group C - children, whose needs are similar to the basic bicyclists and thus the two are often classified together as Group B and C.

➤ Group A: Advanced

Composed of experienced riders who can operate a bicycle under most traffic conditions. This includes bicycle commuters, bike club riders and other cyclists currently following the rules of the road and riding on area streets and roadways.

➤ Group B: Basic

Casual or new adult and teenage riders who are less confident of their ability to operate in traffic without special provisions for bicycles. Some will develop greater skills and progress to the advanced level, but nationally there will always be millions of basic bicyclists who prefer comfortable access to destinations and well-defined separation of bicycles and motor vehicles.

➤ Group C: Children

Pre-teen cyclists who typically ride close to home under close parental supervision.

Bicycle planning generally promotes a “design cyclist” concept that recognizes and accommodates the needs of both Group A and Group B and C bicyclists.

Group A cyclists will be best served by making every street bicycle-friendly by removing hazards and maintaining smooth pavement surfaces. Group B and C riders will be best served in key travel corridors where designated bicycle facilities are provided in the form of signed and striped bicycle lanes on selected roadways, and off-road trails following waterways and other linear open space corridors. Sidewalks make integrating with vehicle traffic problematic, increasing the risk of an accident significantly more than when a bicyclist uses the roadway as a vehicle, thus they are not included in bicycle planning as bicycle facilities. Also, it is important to recognize that sidewalks are pedestrian spaces, and their presence is not meant to substitute or preclude bicyclist use of local streets and roadways.

Bicycle Facility Planning in Redmond

The City of Redmond has historically undertaken two separate but coordinated planning efforts for facilities that are used by bicycling Groups A, B, and C. One is the trails function of the Parks and Recreation Department, overseen by the Trails Commission and Parks Board. The other is the bikeway plan being implemented by the Public Works Department, with direction from the Pedestrian and Bicycle Advisory Committee.

Facilities existing and/or planned by these groups are summarized in *Figure 5B.2* and mapped in *Figure 5B.12*.

The Parks, Recreation and Open Space (PRO) Plan focuses on a variety of off-road trail types, which are classified by a combination of function and surface type/intended user.

Non-motorized transportation planning uses a bikeway classification system that overlaps with the Parks

Trail Network Components		
	Function	Trail Surfacing/Users
Backbone Trails	Large-scale regional facilities that link Redmond with surrounding jurisdictions	Multi-use facilities, providing 10'-12' paved pathways for bicyclists and skaters, with parallel soft-surface trails.
Collector Trails	Medium-scale facilities, typically within City street rights-of-way, that provide connections to the backbone trails	A combination of an 8' wide sidewalk separated from the street with a planting strip, and a parallel 2'-3' soft surface trail. (Most corridors designated for collector trails include on-street bicycle lane facilities.)
Multi-Use/ Hiking and/or Neighborhood Linkages	Small-scale pedestrian connections that link neighborhoods with each other and with longer collector and backbone trails	Soft-surface trails designated as either multi-use or hiking-only. Are relatively narrow, low-intensity trails. (While sidewalks function to link neighborhoods, for trail planning purposes, sidewalk segments are not considered to be neighborhood trail links.)

Non-Motorized Transportation Network Components		
	Characteristic	Facility Design/Users
Class I: Bicycle Paths	Bicycle facilities that are physically separated from motorized traffic.	<p>Paved multi-use trails can be used by all cyclists, especially those uncomfortable riding in traffic. However, commuter cyclists who desire fast travel speeds may often choose to ride on streets instead of trails.</p> <p>Soft-surface trails may be ridden by most cyclists, but are most suitable for mountain bikes and fair-weather riding. Swept and kept clear of debris all time of the year.</p>
Class II: Bicycle Lanes	Portions of a roadway identified by striping, signing and pavement marking for preferential use by bicyclists.	<p>Bicycle lanes are most often provided on major streets where traffic volumes and speeds necessitate some level of separation between cyclists and motor vehicles.</p> <p>If provided for longer distances with no hazards or missing links, bike lanes can encourage people to bicycle who normally wouldn't consider it. Regular maintenance and sweeping of bicycle lanes is necessary to prevent buildup of road debris, which reduces traction, increases incidences of flat tires, and can present dangerous obstacles. Include signal cycle activation not dependent upon automobiles.</p>
Class III: Shared Roadways	<p>Streets shared by bicycles and motor vehicles that have either:</p> <ul style="list-style-type: none"> ➤ Wide curb lanes ➤ Paved shoulders ➤ Low traffic volumes and speeds <p>(May or may not have Bike Route signs)</p>	<p>Arterial streets with undesignated wide curb lanes or paved shoulders typically have traffic speeds and volumes that are too high for all but the most experienced bicyclists.</p> <p>Local streets and areas with effective traffic calming are suitable for cyclists to share the road with motorists because both will be traveling at similar speeds.</p>

Figure 5B.2 Summary of Redmond's definitions for trails and bikeways

Department classifications in the Class I/bicycle path category. It differs from the PRO Plan in that it does not recognize various types of trails intended for users other than cyclists; and it includes, and focuses on, the suitability of streets and roadways for bicycling.

Additionally, Transportation Choices for Downtown Redmond (aka the Downtown TMP), developed in 2002, proposes a bicycle network concept for Downtown to provide bicycle accessibility throughout the city center, as well as direct connectivity between key bicycle facilities. Regional planning efforts, being led by the Cascade Bicycle Club, are underway to integrate connections with King County and surrounding communities.

The TMP Bicycle System Plan

Research has shown that the principal impediments to non-recreational bicycling are discontinuities in routes (missing links) and barriers to travel (unsafe street crossings, etc.). The average length of a future utilitarian bicycle trip in Redmond will be at least 2.5 miles (the national average). That means continuous routes at least that long connecting Redmond's principal origins and destinations must be created.

The Transportation Master Plan therefore distills Redmond's various planned facilities into a functional system that allows bicycling to become a viable transportation option. As outlined in *Figure 5B.3* and mapped in *Figure 5B.13*, a system of Primary and Secondary Bicycling Corridors, based primarily upon facility length, shall be implemented. Primary corridors are at least 2.5 miles long and secondary corridors at least 1 mile in length.

Facilities within the primary corridors shall consist of two types: backbone trails within open space corridors, and bicycle lanes on Redmond streets. The secondary corridors may be shorter in length, feed into the primary network, contain a wider range of facility types, and/or contain trails developed to slightly lower standards.

The type of bikeway may vary throughout the length of a given bicycle corridor, but transitions shall be seamless and barriers removed in an effort to provide bicyclists with viable alternatives for cross-town travel. Completing strategic pieces of the primary system shall be the highest priority for the City of Redmond to ensure barrier-free travel options from various parts of town into and through the city center. (See Chapter 4.)

The TMP Bicycle System Plan			
	Function	Trails Components	Bikeway Components
Primary Bicycling Corridors	Allows bicyclists barrier-free travel for distances of 2.5 miles or more	Backbone Trails: <ul style="list-style-type: none"> ➤ Multi-use facilities with paved trail surfaces 	<ul style="list-style-type: none"> ➤ Bicycle Paths (paved commuter trails) ➤ On-Street Bicycle Lanes
Secondary Bicycling Corridors	Connects into the primary system to provide greater access into all parts of the community; typically for distances at least 1 mile in length	Backbone Trails: <ul style="list-style-type: none"> ➤ Multi-use facilities with soft surfaces 	<ul style="list-style-type: none"> ➤ Bicycle Paths (trails with soft surfaces and/or steep terrain) ➤ On-Street Bicycle Lanes ➤ Paved Shoulders ➤ Wide Curb Lanes ➤ Signed Bike Routes on non-arterial streets
Local Connections	Connects residential neighborhoods and individual destinations into the citywide system with special emphasis to schools	Collector Trails: <ul style="list-style-type: none"> ➤ Wide sidewalk trails (may be used by some bicyclists depending on skill level) Neighborhood Linkages: <ul style="list-style-type: none"> ➤ Short trail segments linking with collector and backbone trails ➤ Should be paved to if desired to support bicycling 	<ul style="list-style-type: none"> ➤ All local streets as undesignated shared roadways

Figure 5B.3 Role of trails and bikeways in establishing Primary and Secondary Bicycling Corridors

Implementation

In 2003, Redmond was named a Bicycle-Friendly Community by the League of American Bicyclists and presented a Bronze level award. In 2004, Redmond was one of five communities selected nationally to participate in the Bike Town USA program. As a municipality that actively supports bicycling through its infrastructure and programs, the following strategies and action items will continue Redmond's successes and move the community into higher levels of bicycle-friendliness:

1. The City will continue to provide enhanced riding environments so that bicycling is an integral part of life in Redmond.

- a.** Continue to routinely accommodate bicyclists as part of roadway improvement projects.
- b.** Develop Parks and Recreation facilities that include hard-surface multi-use trails that meet standards for safe and attractive bicycle transportation.

2. The City of Redmond will develop a continuous, interconnected bicycling system that accommodates longer distance trips and provides access to major destination areas including schools.

- a.** Identify a system of primary and secondary bicycling corridors based upon function.
- b.** Implement missing links in the primary system as highest priority projects.
- c.** Strive to strike a balance between developing off-road trails and making on-street enhancements to provide riding opportunities for all types of bicyclists.
- d.** Ensure schools are safely connected into the bicycle system.

3. The City of Redmond will prioritize the spending of transportation funds into identified areas of greatest need.

- a.** Balance funding allocations between major projects designed to enhance automobile capacity and projects that accommodate multiple modes.
- b.** Complete identified missing links in primary bicycling corridors.
- c.** Make connections and transitions between on- and off-road bicycle facilities.
- d.** Regularly assess street and trail maintenance needs and make spot improvements.

4. The City of Redmond will work with adjacent jurisdictions and transit agencies to accomplish multimodal and regional connections.

- a.** Explore increased capacity to better accommodate bikes on buses.
- b.** Utilize the new transit centers in Overlake and Downtown as hubs of bicycling activity in Redmond.
- c.** Make necessary improvements to corridors identified as regionally significant bicycle routes and coordinate planning and implementation with surrounding jurisdictions.
- d.** Work to improve multimodal connectivity between bicycling and transit by providing safe bicycle storage at transit centers and at key bus stops in multimodal corridors.

5. The City of Redmond will supplement these engineering improvements by implementing bicycle education, encouragement and enforcement programs.

- a.** Work with and expand existing TDM programs to promote increased and safer bicycling in Redmond.
- b.** Work to reinforce public understanding of laws concerning cyclists.
- c.** Keep Redmond Bicycling Guide up to date.

Prioritizing Needs

The City of Redmond needs a systematic way to identify areas of highest need so that funding will be spent on projects that will make a difference to area cyclists. Many of the proposals depicted in *Figure 5B.12* represent unfunded projects not currently contained within the Transportation Facilities Program (TFP).

For off-road bike paths, the current PRO Plan outlines projects funded through the Park Improvement Plan through the year 2013. The highest priority trail projects of the Parks and Recreation Department include acquisition and construction of the Bear/Evans Creek Trail, and planning/acquisition for a potential Burlington Northern rails-to-trails project. For on-road facilities, the Public Works Department works to make bicycling enhancements to street segments as part of larger roadway improvement projects.

These processes, while making progress to make Redmond more bicycle-friendly, result in pieces of facilities rather than an interconnected bicycle system.

To begin to assign priority to potential projects, *Figure 5B.13* identifies a system of primary and secondary bicycling corridors, selected per the criteria presented in *Figure 5B.4* below. This recommended system was developed in conjunction with City staff, the Trails Commission, and the Pedestrian and Bicycle Advisory Committee, and was reviewed by the bicycling public at a TMP open house held June 10, 2004, in conjunction with Redmond's first Bicycle Rally. (Portions of this system that are to be completed by 2022 are presented in *Chapter 4*.)

In the future, two types of facilities will make connections in the primary corridors -- signed and striped on-street bicycle lanes, and hard-surfaced multi-use trails. For each, the facilities shall be designed to standards set forth by the American Association of State Highway and Transportation Officials (AASHTO) Guide for the Development of Bicycle Facilities, and the Manual on Uniform Traffic Control Devices (MUTCD).

Criteria for Selecting Bicycling Corridors	
PRIMARY CORRIDORS <ul style="list-style-type: none"> ✓ Allow bicyclists barrier-free travel for distances of 2.5 miles or more. 	SECONDARY CORRIDORS <ul style="list-style-type: none"> ✓ Connect into the primary bicycle system to provide greater access to and from all neighborhoods. ✓ Distance typically at least 1 mile in length.

Future Enhancements Recommended for Bicycling Corridors	
PRIMARY CORRIDORS <ul style="list-style-type: none"> ✓ Corridor will provide a combination of Class I: Bike Paths/Backbone Trails and/or Class II: Bicycle Lanes for the entire length. ✓ Seamless transitions between Class I and Class II facilities within the corridor. ✓ Seamless transitions with all intersecting bicycle corridors. ✓ Highest priority for funding missing links in system. 	SECONDARY CORRIDORS <ul style="list-style-type: none"> ✓ Corridor may provide a combination of Class I, Class II, and Class III facilities. ✓ Seamless transitions between facility types within the corridor. ✓ Seamless transitions with intersecting bicycle corridors. ✓ High priority for implementation in conjunction with roadway retrofit and adjacent land development; Moderate priority for independent project funding.

Figure 5B.4 Selection and Planning Criteria for Primary and Secondary Bicycling Corridors

5B. BICYCLE SYSTEM PLAN

Missing Links

Planned segments of the primary system yet to be built are listed below and mapped in *Figure 5B.13*. These high priority missing links include, as noted:

- 1) Projects ranked as top unmet needs by area cyclists.
- 2) Bicycling components of recommended multimodal corridors. (See *Chapter 5E: Modal Integration Plan*)

Missing Links in Primary Bicycle System					
Map Key	Corridor	Segment	Facility Need	Jurisdictional Coordination	Notes
A	NE 124 th Street	SR 202 to Avondale Rd	on-street bike lanes or paved shoulders	Slater Avenue to 132 nd Ave. NE is in the City of Kirkland	
B	NE 116 th Street	Willows Rd to Avondale Rd	missing pieces of on-street bicycle lane	piecemeal construction through land development	2
C	Redmond Puget Power Trail	Existing trail west to 132 nd Ave NE	paved bike path to AASHTO standards	Redmond City limits 132 nd Ave. NE	
D	Redmond Puget Power Trail	Willows Rd to Farrel-McWhirter Park	paved bike path to AASHTO standards parallel to soft-surface facility		
E	Redmond Way (SR 202)	161 st Ave NE to Bear Creek Parkway	on-street bicycle lanes or traffic calming as part of conversion project to two-way street	State Route will need WSDOT approval (see alternate page 5B.8)	1, 2
F	BNSF Corridor (Downtown segment)	NE 90 th St. to Bear Creek Trail	urban bicycle path parallel to transit accommodation	BNSF corridor not owned by the City of Redmond	1, 2
G	Bear and Evans Creek Trail	Bear Creek Parkway to Evans Creek Trail	paved bike path to AASHTO standards	programmed in Park Improvement Program	1
H	Union Hill Road	Avondale Rd to Evans Creek Trail and into adjacent jurisdictions	on-street bicycle lanes or paved shoulders	bike lanes to be constructed from 178 th Pl. NE to 188 th Ave. NE in 2004	2
I	Redmond Fall City Road	Bear Creek Parkway to Evans Creek Trail and into adj. jurisdictions	on-street bicycle lanes or paved shoulders	WSDOT project to include bike lanes in 2004	1
J	NE 24 th Street	148 th Ave NE to 172 nd Ave NE	on-street bicycle lanes	City of Bellevue street	2
1	Willows Road	95 th St. NE to NE 90 th St.	Complete missing segment of on-street bicycle lanes		1
2	BNSF Corridor	NE 124 th St. to Sammamish River Trail	paved bike path to AASHTO standards in rail corridor	BNSF Corridor not owned by the City of Redmond	
3	Red-Wood Road	NE 124 th St. to NE 109 th St.	on-street bicycle lanes or paved shoulders	SR 202/Red-Wood Road will need WSDOT approval	2
4	160 th Ave NE	Red-Wood Road to NE 90 th St.	on-street bicycle lanes	proposed new roadway connection	2
5	Bear Creek Parkway Extension (west)	Leary Way to Redmond Way	on-street bicycle lanes	proposed new roadway connection	2
6	172 nd Ave NE/ 166 th Ave NE	NE 104 th St. to NE 87 th St.	on-street bicycle lanes		2
7	166 th Ave NE/trail extension	Redmond Way to Marymoor Park Way	on-street bike lanes or traffic calming; construct paved path extension across Bear Creek and 520		1
8	Avondale Way	Redmond Way to NE 85 th Pl	on-street bicycle lanes or parallel bike path		1, 2
9	Evans Creek Trail	Puget Power Trail to exst. Evans Creek Trail	paved bike path to AASHTO standards		
10	148 th Ave NE	Willows Rd. to NE 24 th St.	on-street bicycle lanes or parallel primary north/south alternative	148 th not feasible route (see alternate page 5B.8)	1, 2
11	156 th Ave NE/ 152 nd Ave NE	NE 51 st St. to NE 20 th St.	on-street bicycle lanes or parallel bike path		1, 2
12	Bellevue-Redmond Road	W. Lake Sammamish Pkwy to NE 24 th St.	on-street bicycle lanes		1
13	BNSF/East Lake Sammamish Trail	Bear Creek Trail into adjacent jurisdictions	paved bike path to AASHTO standards	King County project	1

Figure 5B.5 Missing Links as depicted in Figure 5B.13

Making Seamless Transitions

In addition to the identified longer segments of missing links, the City shall work to make transitions and connections between on-street bike lanes and the off-road trail system.

The implementation list presented in *Figure 5B.6* was developed with Public Works Staff and the Pedestrian and Bicycle Advisory Committee. Notes:

- 1) Grade-separated trail crossings as proposed in the 2001 Redmond Trail Crossings Study. These need to include appropriate ramps, curb cuts and wayfinding signage to allow bicycle users to transition from street grade to the trail system.
- 2) Located at the junction of one or more multimodal corridors. (See *Chapter 5E*)

In general, Backbone Trail facilities shall have grade-separated crossings of major streets and roadways. This is, of course, dependent on having grade differential to work with. Backbone Trails may cross at-grade when arterial streets have traffic speeds less than 30 mph, where trails can safely route through signalized roadway intersections, and at crossings of local streets with appropriate MUTCD signing and/or midblock enhancements.

At-grade street crossings are also most appropriate for Collector Trails and Neighborhood Linkages, at least as interim facilities until the entire Primary Bicycling System is funded and completed.

Needed Transitions between Trails and Roadways			
Trail Corridor	Roadway Connection	Facility Need	Notes
Sammamish River Trail	Linking to NE 124 th Street	Grade separation exists. Tunnel shall be widened and shall include a connection to 124 th Street as part of the 124 th construction project.	
	Linking to the BNSF rail corridor	Access needed between.	2
BNSF rail corridor	Linking to Willows Road	Connection to Downtown rail-trail segment most likely to occur at NE 90 th Street. Planning and preliminary design shall jointly address any Willows Road improvements and the BNSF trail conversion project.	1
	Linking to Old Redmond Road/ West Lake Sammamish Way	Pursue new trail connection on the north side of Redmond Way at West Lake Sammamish Way to connect to Old Redmond Rd.	2
	Linking to Leary Way	At-grade crossing acceptable for interim solution if traffic signal is added. Long-term should be grade-separated.	2
	Linking to East Lake Sammamish Trail and East Lake Sammamish Parkway	At-grade crossing of Bear Creek Parkway will need improvements for interim solution. Long-term design should be grade-separated.	1, 2
	SR 520	At-grade crossing for interim solution. Long term solution grade separation	
E. Lake Sammamish Trail	Linking to 187 th Ave NE/Redmond Fall City Rd	Existing tunnel needs access improvements.	
Bear and Evans Creek Trail	Linking to 187 th Ave NE/Redmond Fall City Rd	Signal is being added for short-term solution as part of SR 202. Long-term should be grade-separated.	
	Linking to Union Hill Rd	At-grade crossing at signal acceptable for interim solution. Long-term should be grade-separated.	1
	Crossing Avondale Rd at Avondale Way	At-grade intersection improvements	1, 2
	Linking to Novelty Hill Rd	Grade separation desired.	1
Redmond Puget Power Trail	Linking to Willows Road	At-grade signalized crossing	1

Figure 5B.6 Needed connections as identified by the Bicycle and Pedestrian Advisory Committee

Alternate Bicycling Corridors

Two desired primary bicycling corridors present significant obstacles for bicycle facility implementation. Both were ranked as critical missing links by the cycling community (*Map 5B.13*) and were identified as part of the priority multimodal corridors system (*Map 5E.7*).

The following alternate bike routes are thus recommended to provide cyclists with continuous, barrier-free travel going east/west through downtown and north/south through west Redmond:

- **Corridor E/F - Redmond Way/BNSF**
Redevelopment of the Burlington Northern Santa Fe railroad corridor as an urban bicycle path could be the preferred way for cyclists to move across downtown Redmond. Traffic calming on Redmond Way with the conversion to two-way traffic flow will additionally improve bicycling conditions on the parallel on-street route, but striping bike lanes is not likely feasible.
- **Corridor #10 - 148th Avenue NE**
Neither on-street bicycle lanes or a parallel sidepath trail can be cost-effectively constructed on 148th Avenue NE from NE 24th to NE 90th. Thus a parallel north/south route will be developed as a primary bicycling corridor through the expanding Overlake Technology Center.

Three missing links to complete this route are:

- **#10a** - Construct a trail link from the BNSF corridor up to the T-intersection of Old Redmond Road at Redmond Way. Reconfigure intersection design and signalization to accommodate through bicycle travel. Add bike lanes to connect to Old Redmond Road.
- **#10b** - Beginning at the access point of the SR 520 Trail, stripe bicycle lanes on the following streets through the Overlake Technology Center: NE 51st St, 150th Ave NE, 152nd Ave NE, and NE 36th St.
- **#10c** - Construct a new two-lane roadway with bicycle lanes across the proposed SR 520 overpass to connect to the Overlake Mixed-Use Core.

In addition, the existing SR 520 Trail provides another primary north/south bicycling route for through travel through the Overlake Technology Center.

Addressing Bicycling in Pedestrian Places

The key to creating places in Redmond where pedestrians feel comfortable is slowing motor vehicles to speeds more compatible with non-motorized modes. Narrowing travel lane widths, providing on-street parking, and “greening” street corridors are viewed as necessary to achieve this. So where do bicycles fit in?

A final bicycle facility issue to address is how to accommodate bicycles in Downtown Redmond and other places designed to give priority to the pedestrian. Additional operating space for bicycles (i.e. bike lanes or a parallel trail) is most needed on roadways with high travel speeds. A general rule of thumb is the greater the speed differential between cars and bikes, the greater the separation desired. When bicycles and motor vehicles are traveling at or near the same speeds, Class II on-street bike lanes are no longer a necessity.

However, the key to ensuring that bikes and cars can share the road is to slow traffic speeds. Doing nothing is not a solution. If bike lanes are not going to be provided within the City Center and Overlake to make key connections for Primary Bicycling Corridors, some level of traffic calming needs to be implemented. If not, many cyclists will likely end up riding on sidewalks, which should be reserved for pedestrian use and can be a safety issue.

One traffic calming option that shall be explored for implementation within pedestrian destination areas is narrowing travel lanes (potentially down to 10' widths) and using colored pavement to delineate space for bicycling and/or parking (which may also be narrower than typical AASHTO standards). An example of such treatment is depicted in *Figure 5B.7* and may be combined with other traffic calming treatments as appropriate.



Figure 5B.7 Traffic calming technique of narrowing vehicular lanes and coloring pavement for bicycling and/or parking along pedestrian-oriented streets

Education, Encouragement, Enforcement

It is widely recognized that engineering solutions alone won't make a community bicycle-friendly. Instead, the City of Redmond shall undertake a "4-E Approach" to bicycle planning that includes TDM measures to address education, encouragement and enforcement needs. The strategies for physical facility improvements shall be accompanied by the following programs:

- ✓ Increased Law Enforcement for Motorists
Speeding, using shoulders and bike lanes as right-turn lanes, and failing to yield when making a right turn on red are frequently cited motorist infractions.
- ✓ Bike-Friendly Businesses and Transit Centers
Public and private sectors of the community shall provide secure and convenient bicycle parking facilities (racks and lockers), showers, changing areas, and other incentives to bike that balance provisions for free auto parking.
- ✓ Bikes on Buses
Redmond cyclists desire increased capacity for bicycles on buses. Metro and Sound Transit buses currently have a front rack that accommodates two bicycles. When the racks are full, cyclists must wait for the next bus, which may not come for another half hour or hour, and may already be full as well. Racks with increased capacity and/or modification to policy restricting bringing bikes into buses should be explored.
- ✓ Share the Road Signing
Motorist awareness may be enhanced through implementation of a Share the Road signing program. Such signs shall be used to warn bicyclists and motorists that less than ideal conditions may exist along a route that is being used by both users.
- ✓ Enhanced Wayfinding for Cyclists
Consider a bike route naming program with signage for cyclists to know how to reach major destinations. Place kiosks with wayfinding at gateways to various parts of the community.
- ✓ Properly Equipped Nighttime Bicyclists
Adult cyclists need to be outfitted with proper lighting equipment and educated on safely riding at night.
- ✓ Education for Child Bicyclists
Children need to be taught how to ride on streets and behave like operators of vehicles. Bicycle rodeos and other programs shall be introduced.
- ✓ Safe Routes to Schools
The Lake Washington School District shall participate in the WSDOT program to provide safe routes to school.

Secure Bicycle Parking

Locations

Bicyclists need convenient and protected places to secure their bicycles while at destinations. The following policies will be adopted for secure bicycle parking.

- ✓ Downtown Redmond will have secure bicycle parking at intersections and along street corridors where there are primary and secondary bicycle facilities.
- ✓ Overlake Commercial Core will have secure bicycle parking at intersections and along street corridors where there are primary and secondary bicycle facilities.
- ✓ Primary and secondary bicycle facilities will have secure bicycle parking at major retail and commercial locations, public buildings, parks, and K-12 schools; in no case will bicycle parking be spaced at distances greater than ½ mile.
- ✓ Transit stops along multimodal corridors and along all primary bicycle routes will have secure bicycle parking. Elsewhere, transit stops will have secure bicycle parking if more than one route services the stop.

Elements of secure bicycle parking

Safe and convenient bicycle parking should be provided to support bicycling trips. The following policies will be adopted for secure bicycle parking.

- ✓ Racks will support the bicycle upright by its frame in two locations, and allow both the frame and one wheel to be secured using a standard U-shape lock.
- ✓ Racks will be located in areas that do not impede pedestrian traffic.
- ✓ Racks will be located in highly visible areas to promote usage and enhance security.
- ✓ At locations where bikes will be parked most of the day or overnight shelter should be provided to protect bicycles from elements.
- ✓ Racks will be accessible from primary and secondary bicycle facilities.



Figure 5B.8 Secure bicycle parking that is protected from weather is necessary where parking occurs all day or overnight.



Figure 5B.9 Bulbouts at intersections in downtown are secure and visible locations for bicycle parking.



Figure 5B.10 Bicycle parking that secures the frame, not just the wheels, will be installed in all locations. The design shown has proper placement but uses an inadequate rack.

Map Summary

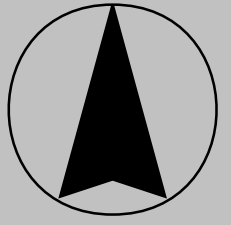
As previously described, the following TMP maps depict elements of bicycle facility planning in Redmond. These maps represent the process of project prioritization from the community's long-range vision to the concurrency management condition to be met and implemented by the build-out plan.

Bicycle Maps			
Number	Title	Description	Page
<i>Figure 5B.12</i>	Previous Bicycle Facility Planning	<p>Combined map of all on- and off-road bicycle facilities of both the Redmond Public Works Department and Redmond Parks and Redmond Recreation Department, prior to development of this TMP. (Same map as maps CC-3 and CC-4 contained within the Redmond Comprehensive Plan.)</p> <p>Identifies specific types of facilities and the current status of each (i.e. - existing vs. planned). No priorities or levels of funding commitment assigned.</p>	5B.13
<i>Figure 5B.13</i>	Primary and Secondary Bicycle Corridors	<p>Recommended TMP system of long (2.5-mile) primary corridors and shorter (1.0-mile) secondary corridors to serve a variety of origins and destinations. This represents the ideal bicycle system at build-out.</p> <p>Does not depict recommended types of bicycle facilities within each corridor, but identifies 22 missing links (unbuilt projects) in the primary bicycle system.</p>	5B.15
<i>Figure 5E.7</i>	Proposed Multimodal Overlay	Identifies 14 multimodal corridors that shall have Class II bicycle lanes or Class I bicycle paths along with enhancements for pedestrians, transit service and automobile mobility.	5E.13
<i>Figure 4.7</i>	2022 Bicycle System Priorities	<p>Identifies 5 major crosstown bicycle routes that will be completed by 2022 as part of the TMP.</p> <p>Represents several of the most important corridors that will create feasible access to Redmond's primary employment zones from most residential areas, and will provide safe, convenient and direct bicycle circulation between the primary commercial areas.</p>	4.9

Figure 5B.11 Guide for bicycle maps contained in the TMP

5B. BICYCLE SYSTEM PLAN

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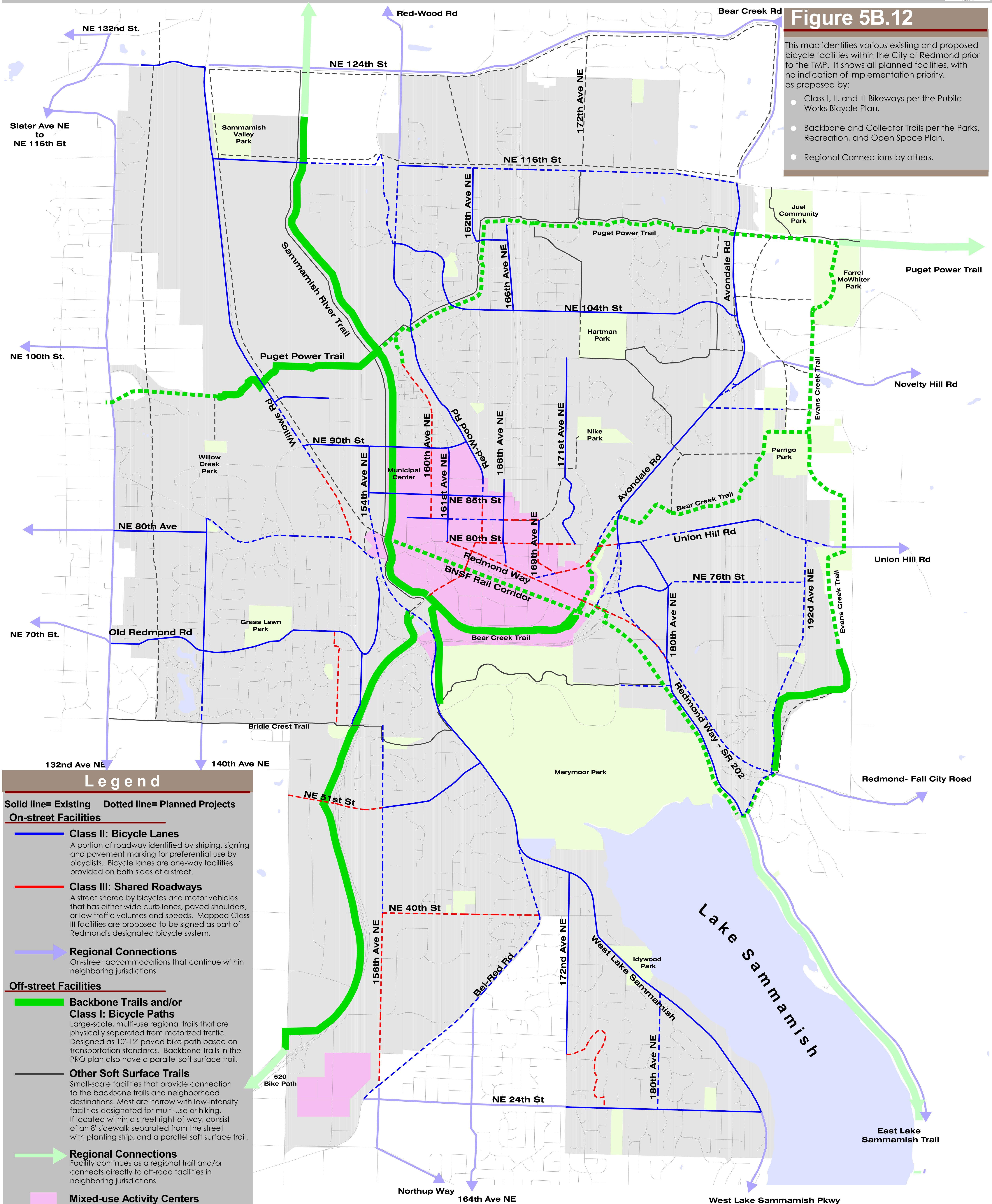


Previous Bicycle Facility Planning



This map identifies various existing and proposed bicycle facilities within the City of Redmond prior to the TMP. It shows all planned facilities, with no indication of implementation priority, as proposed by:

- Class I, II, and III Bikeways per the Public Works Bicycle Plan.
- Backbone and Collector Trails per the Parks, Recreation, and Open Space Plan.
- Regional Connections by others.



Legend

Solid line= Existing Dotted line= Planned Projects
On-street Facilities

Class II: Bicycle Lanes

A portion of roadway identified by striping, signing and pavement marking for preferential use by bicyclists. Bicycle lanes are one-way facilities provided on both sides of a street.

Class III: Shared Roadways

A street shared by bicycles and motor vehicles that has either wide curb lanes, paved shoulders, or low traffic volumes and speeds. Mapped Class III facilities are proposed to be signed as part of Redmond's designated bicycle system.

Regional Connections

On-street accommodations that continue within neighboring jurisdictions.

Off-street Facilities

Backbone Trails and/or Class I: Bicycle Paths

Class 1: Bicycle Paths
Large-scale, multi-use regional trails that are physically separated from motorized traffic. Designed as 10'-12' paved bike path based on transportation standards. Backbone Trails in the PRO plan also have a parallel soft-surface trail.

Other Soft Surface Trails

Small-scale facilities that provide connection to the backbone trails and neighborhood destinations. Most are narrow with low-intensity facilities designated for multi-use or hiking. If located within a street right-of-way, consist of an 8' sidewalk separated from the street with planting strip, and a parallel soft surface trail.

Regional Connections

Regional Connections
Facility continues as a regional trail and/or connects directly to off-road facilities in neighboring jurisdictions.

Mixed-use Activity Centers



2.5 miles is average length of a bicycle trip



Each identified corridor may contain various types of bicycle facilities, seamlessly integrated to offer bicyclists a continuous route of travel across town and into adjacent jurisdictions. This system will be used to establish priority for using limited transportation resources to construct projects and improvements where most needed.

